

Lead Screening in Arizona

January 2012

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Objectives

- To minimize the neurologic and behavioral impact of lead poisoning through evidence-based, cost-effective screening
- To compare and contrast populations where universal vs. targeted screening is indicated
- To discuss current CDC, AAP, AAFP and USPSTF guidelines for lead screening in relation to CMS/AHCCCS recommendations

AAP and AHCCCS/KidsCare

- **AAP¹:**
 - Perform risk assessment at 12 and 24 months, with universal blood screening in high prevalence and Medicaid populations
 - Assess risk at 6,9,12,18 and 24 months and annually through age 6 with blood screening as appropriate
- **AHCCCS/KidsCare:**
 - Screen all AHCCCS and KidsCare children at 12 and at 24 months
 - Screen all children 36-72 months of age, if not previously tested
 - A note on the Early Periodic Screening, Diagnosis and Treatment Program (EPSDT)
 - “CMS requires that all children receive a screening blood lead test at 12 months and 24 months of age...A blood lead test must be used when screening Medicaid-eligible children²”

¹American Academy of Pediatrics. 2010. “[Performing Preventive Services—A Bright Futures Handbook](#)”

²http://www.cms.gov/medicaidearlyperiodicscrn/02_benefits.asp

AAFP

SORT: KEY RECOMMENDATIONS FOR PRACTICE

<i>Clinical recommendation</i>	<i>Evidence rating</i>	<i>References</i>
Targeted screening for elevated blood lead levels should be performed in children at one and two years of age who are Medicaid-enrolled or -eligible.	C	6, 8
Targeted screening for elevated blood lead levels should be performed in all children deemed to be at risk.	C	6
All foreign-born children, such as recent immigrants, refugees, and international adoptees, should be screened for elevated blood lead levels immediately on arrival in the United States.	C	6, 16-19
Measurement of blood lead level with a carefully collected finger-stick sample is an acceptable alternative to a venous sample.	C	6, 8, 23-25
Elevated blood lead levels from capillary samples should be confirmed by a venous sample.	C	26
Chelation therapy is recommended only for blood lead levels of 45 µg per dL (2.17 µmol per L) or greater.	C	3, 27, 31-33
Iron supplementation improves blood lead levels in anemic, iron-depleted children.	C	41, 42

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to <http://www.aafp.org/afpsort.xml>.

USPSTF

- **Insufficient evidence** to recommend for or against routine screening for elevated blood lead levels in asymptomatic children aged 1 to 5 who are at **increased risk**
(I recommendation)
- Recommends **against routine screening** for elevated blood lead levels in **asymptomatic** children aged 1 to 5 years who are at **average risk**
(D recommendation)

CDC

- (Previously rec was universal screening before 1997)
- **Universal:**
 - Inadequate information on community BLLs
 - >27% of houses built before 1959¹
 - >12% of 1 and 2 year olds with BLLs >10ug/dL
- **Targeted:**
 - ≤27% of houses built before 1959
 - ≤12 of 1 and 2 year olds with BLLs >10ug/dL

How do we quantify risk in AZ?

- LPRI (lead poisoning risk index)= $[A + B + C + D + \{E/(F \times G)\}]$
- Where:
 - A = % of total population being children age 0-5 years old
 - B = % of total housing stock built prior to 1960
 - C = % of total households Speak a language other than English at home
 - D = % of families below poverty level
 - E = Number of children age 0-5 years with a blood lead level of 10 $\mu\text{g}/\text{dL}$ or higher between 2006 – 2010 (Source: AZ CLPPP registry of lead poisoned children)
 - F = Total number of children age 0-5
 - G = Average AHCCCS screening percentage = 0.2 (actually 0.16)
- Scores $\geq 75\%$ percentile of LPRI scores \rightarrow high risk

LPRI high-risk zip codes

County	City	AZ CLPPP High Risk Zip Codes
Cochise	Bisbee	85603
	Douglas	85607
	Wilcox	85643
Coconino	Flagstaff	86001
Gila	San Carlos	85550
La Paz	Salome	85348
Maricopa	Avondale	85323
	Chandler	85225
	Glendale	85301, 85302
	Mesa	85201, 85210, 85204
	Peoria	85345
	Phoenix	85009, 85034, 85041, 85031, 85017, 85008, 85019, 85015, 85040, 85035, 85033, 85016, 85021, 85043, 85051, 85020, 85029, 85037
	Tempe	85281
Pima	Ajo	85321
	Tucson	85713, 85706, 85711, 85705, 85719, 85712, 85746
Pinal	Casa Grande	85222
Santa Cruz	Nogales	85621
Yuma	Somerton	85350
	Yuma	85364

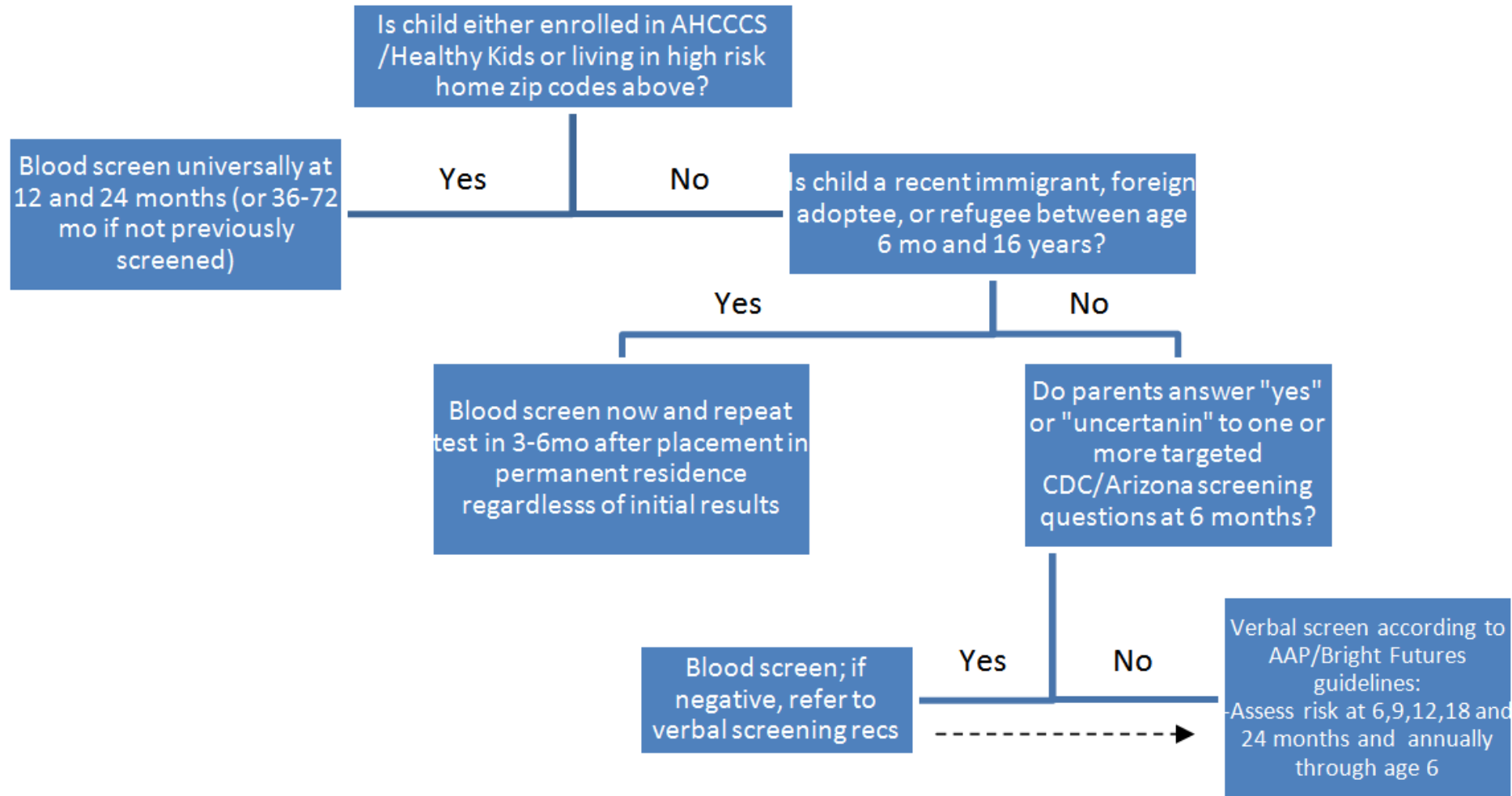
Targeted Screening—CDC

- Does your child live in or regularly visit a house that was built before 1950 (this could apply to a home day care center or the home of a babysitter or relative)?
- Does your child live in or regularly visit a house built before 1978 with recent or ongoing renovations or remodeling (i.e., within the past six months)?
- Has a sibling or playmate been followed or treated for lead poisoning?
 - Any “yes” or “uncertain” answer → screen

Arizona/Region-specific questions

- Does your child live with an adult whose job or hobby involves exposure to lead (including mining and automobile, and especially radiator, work)?
- Does your child live near an active lead smelter, battery recycling plant, or other industry likely to release lead?
- Does your child play in or put dirt in his/her mouth?
- Has your child ever been in Mexico, Central America, or South America?
- Have you ever given your child any of these home remedies: Azarcon, Alarcon, Greta, Rueda, Pay-loo-Ah?
- Does your child eat or drink from pottery or ceramic cookware from Mexico?
- Does your child eat **turmeric**, tamarind and/or other imported spices, or imported candies (especially from Mexico)?

Clinical Algorithm¹



1) Kelly, NR. 2011. "[Screening tests in children and adolescents](#)"; section on lead poisoning". Up-to-date.

2) CDC. 2009. "[Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1–5 Years: an Updated Approach to Targeting a Group at High Risk](#)". MMWR, 58(RR-9).

3) AAP. 2010. "[Performing Preventive Services—A Bright Futures Handbook](#)"

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- AAP Committee on Environmental Health. "[Lead exposure in children: prevention, detection, and management](#)". Pediatrics. 2005;116(4):1036.
- Centers for Disease Control and Prevention. "[Screening young children for lead poisoning—Guidance for state and local public health officials](#)". U.S. Dept of Health and Human Services, Public Health Service, Atlanta, GA, 1997.
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- United States Preventive Services Task Force. 2007. "[Screening for Elevated Blood Lead Levels in Children and Pregnant Women](#)".
- Warniment, C. Tsang, K. Galazka, S.S. (2010). "[Lead Poisoning in Children](#)". American Academy of Family Physicians. 81(6).